

Service Area Plan

Department of Health

Shellfish Sanitation (56502)

Service Area Background Information

Service Area Description

This service area implements the National Shellfish Sanitation Program.

Services include:

- Classification of shellfish growing areas throughout Tidewater Virginia,
- Inspection and certification of shellfish and crab meat facilities, and
- Customer service to concerned citizenry about shellfish growing areas and to production facility owners about processing techniques.

Service Area Alignment to Mission

This service area directly aligns with VDH's mission to protect and promote public health by helping to prevent food-borne disease.

Service Area Statutory Authority

- Title 28.2, Chapter 8, §§ 28.1 through 28.9, 28.11, 28.16, and 28.18-20 provides the State Health Commissioner with the authority to promulgate regulations and set standards, from a public health perspective, for the taking, processing and marketing of shellfish and crustacea.
- § 32.1-2 defines the findings and purpose of VDH's efforts to protect public health.
- § 9-6.14:4.1, B.16 provides that the State Health Commissioner may issue orders concerning the closure of shellfish growing waters to be effective immediately

Service Area Customer Base

Customer(s)	Served	Potential
Certified crab meat processors	25	100
Certified shellfish processors	166	350
Licensed shellfish harvesters	1,958	3,000
Oyster gardeners	3,000	5,000
Shellfish consumers	1,344,288	1,500,000
Shellfish growing area leaseholders	5,490	7,000
Tidewater riparian landowners along shellfish waters	250,000	400,000

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Anticipated Changes In Service Area Customer Base

- Homeowners with waterfront property enjoy recreationally harvesting oysters and clams from along their waterfront. While the economic impact is minimal, it is quite important to them to be able to safely continue this practice, which is contingent upon the capability to properly classify shellfish growing areas. The number of these people is expected to continue growing.
- The number of shellfish consumers in Virginia continues to grow. While the amount of oysters processed in Virginia continues to shrink, there is a considerable trade in processing out-of-state oysters.
- The number of shellfish leaseholders is not expected to grow appreciably since all available bottom land is leased from the Commonwealth. However, the use of these leases for the production of aquacultured clams in Virginia continues to grow at a tremendous rate, and is expected to continue in the foreseeable future. In 1997, 52.4 million aquacultured clams were produced with gross receipts of \$9 million. In 2003, 139.8 million clams were produced with gross receipts of \$20.3 million.
- The number of oyster gardeners, i.e., persons that grow oysters in near shore containers, is expected to grow rapidly. A foreign species of oyster, *Crassostrea ariakensis*, which is immune to diseases currently plaguing the native oyster, has been approved for growing in Virginia. Both small scale oyster gardeners and large scale oyster growers are anticipated to grow these oysters in an aquaculture process, as opposed to the historical offshore wild harvest areas. Since these aquacultured oysters will be grown in near shore environments that are subject to pollution from small scale events, it is imperative that the Department improve its monitoring of these near shore areas.
- The total number of certified shellfish and crab meat processors has remained fairly stable over the past five years, despite the reduction of native oysters and the decrease in the crab population. While many of the largest facilities have gone out of business, their numbers are replaced by smaller facilities that still require inspections. The number of certified shellfish facilities is quite likely to increase in the future with the aquaculture of *C. ariakensis*, though the future of the crab facilities depends on the future of the crab population.

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Service Area Products and Services

- Classification of shellfish growing areas:
 - Collect and conduct microbiological analysis of environmental water (seawater) samples for evidence of fecal contamination.
 - Collect environmental samples of shellfish for VDH analysis of naturally occurring pathogens using advanced laboratory techniques (DNA fingerprinting – real time Polymerase Chain Reaction (PCR)), and for DCLS analysis of heavy metals and toxic substances.
 - Collect seawater samples for toxic phytoplankton analysis by ODU.
 - Conduct state-of-the-art, nearshore fluorometric surveys for optical brighteners used in laundry detergent as an indication of sewage contamination.
 - Collect shellfish samples for analysis of phytoplankton biotoxins by the U.S. Food and Drug Administration. Collect seawater samples and conduct initial processing of samples in support of DEQ's TMDL work on shellfish closures.
 - Conduct upland, property-by-property inspections for potential sources of pollution to shellfish growing waters. Develop reports for state agencies' regulatory and advisory use.
 - Classify all potential shellfish growing waters in Virginia's portion of the Chesapeake Bay and Territorial Sea by using all available sources of information, including high resolution orthophotography in a GIS application.
 - Develop condemnation zones around marinas and waste water treatment facility discharges by using computer models and GIS technology.
- Certification of processing facilities
 - Conduct USFDA standardized inspections of all certified shellfish and crab meat facilities using FDA's Hazard Analysis Critical Control Point regulation, the National Shellfish Sanitation Program requirements, and VDH regulations.
 - Collect shellfish and crab meat product samples, along with processing water samples for microbiological analysis by VDH laboratories. Conduct and microbiologically analyze swab tests of processing facility surfaces and analyze microbiologically.
 - Work closely with the USFDA and other state's agencies on suspected cases of shellfish-borne disease.
- Enforcement
 - Advise the public of the need to be certified for the production of shellfish and crab meat products for market.
 - Investigate and pursue prosecution of illegally produced and marketed products.
- Regulatory development
 - Develop regulations in concert with the regulated industry as needed.
- Technical assistance to customers
 - Advise shellfish and crab meat processors of proper processing flow and techniques, new processing techniques, risk assessment, water supply problems, etc.
 - Develop schematics for new processing facility owners for their use in developing architectural plans to ensure proper product flow and adequate facilities.
 - Act as mediator between the USFDA and owners of processing facilities when appropriate.
 - Advise the general public of the safest places that they can grow shellfish for personal consumption.
 - Apply and interpret computer models to assess the size of closure areas needed around proposed wastewater discharges and marinas for developers. Similarly, advise other state agencies of these closure areas as part of their respective permit approval processes.

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Factors Impacting Service Area Products and Services

- Due to the increased virulence of diseases to oysters, the oyster industry is changing from a predominantly offshore, semi-wild harvested industry to a near shore, aquacultured product. The noncommercial growth of oysters in floating cages under docks is also becoming a favorite hobby of retirees on the waterfront. Furthermore, the aquacultured clam industry is becoming a highly lucrative, large business in Virginia, and they grow their clams under nets in near shore environments. Since shallow, near shore waters are easily contaminated by relatively small amounts of pollution, the public health concern must be focused more intensely upon these environments.
- With the recent approval by the General Assembly of the grow-out of sterile foreign oysters, *Crassostrea ariakensis*, both the commercial and private oyster growers will greatly increase in numbers and production. Two of the largest oyster-shucking facilities in Virginia are planning the development of their own hatchery for this species and each are currently placing a million oysters into aquaculture. VDH will have to inspect more facilities and will have to evaluate the shoreline on an increasingly more definitive basis, which will require increased work through all aspects of the shellfish program.

Anticipated Changes To Service Area Products and Services

- VDH is in the process of adjusting its growing area classification efforts to more intensely monitor and use new techniques to monitor the near shore environments of shellfish growing areas. VDH has recently received grants to purchase state-of-the-art fluorometers and real time PCR (polymerase chain reaction - genetic fingerprinting) equipment. The fluorometers will be used for field detection of trace sewage inputs from septic tank drainfields and cracked sewer lines. The real time PCR equipment will be used to detect pathogenic strains of naturally occurring bacteria, i.e., those not related to sewage pollution events. All of these activities are workforce intensive, and will require scaling back on other activities, such as the extent of shoreline surveys and perhaps the frequency of processing facility inspections for those that achieve consistently good inspection results.
- The program is constantly improving its information technology capability to make information concerning shellfish condemnations, shoreline surveys, etc. publicly available through its web site.
- As the human population continues to increase along the shoreline of shellfish growing areas, the need for monitoring the attendant runoff pollution into shellfish waters increases. Additionally, as additional biological and chemical threats emerge the need for risk identification and assessment will increase in order to adequately design public health controls to manage risk.

Service Area Financial Summary

This service area is 100% funded by general funds.

	<u>Fiscal Year 2007</u>		<u>Fiscal Year 2008</u>	
	General Fund	Nongeneral Fund	General Fund	Nongeneral Fund
Base Budget	\$1,877,858	\$0	\$1,877,858	\$0
Changes To Base	\$137,203	\$0	\$137,203	\$0
SERVICE AREA TOTAL	\$2,015,061	\$0	\$2,015,061	\$0

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Service Area Objectives, Measures, and Strategies

Objective 56502.01

Advance the elimination of shellfish-borne disease

Protection of public health from pathogens and toxic substances in shellfish products is critically important to ensure the safety of consumers of Virginia's shellfish, and to ensure that Virginia can ship its shellfish into interstate commerce. Shellfish can become hazardous to eat from contamination in both their growing waters and in processing facilities. VDH assesses and classifies shellfish growing waters, inspects and certifies processing facilities, and provides laboratory analyses in support of both programs. The National Shellfish Sanitation Program mandates that states conduct these activities to be able to ship their products into interstate commerce, and it establishes minimal program requirements.

This Objective Supports the Following Agency Goals:

- Prevent and control the transmission of communicable diseases.
()
- Promote systems, policies and practices that facilitate improved health for all Virginians.
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- Respond in a timely manner to any emergency impacting public health through preparation, collaboration, education and rapid intervention.
()
- Assure provision of safe food at restaurants and other places where food is served to the public.
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This Objective Has The Following Measure(s):

- **Measure 56502.01.01**

Annual number of confirmed outbreaks of shellfish-borne disease due to contamination of shellfish in Virginia.

Measure Type: Outcome

Measure Frequency: Annually

Measure Baseline: Zero confirmed outbreaks of shellfish-borne disease due to contamination of shellfish during FY05.

Measure Target: Maintain zero outbreaks during FY07.

Measure Source and Calculation:

VDH works cooperatively with the USFDA to track all cases of shellfish-borne disease both due to Virginia's product, and cases occurring in Virginia but due to other state's product that may or may not have been contaminated in Virginia. Outbreaks are reported on the "Epi 1" form.

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- **Measure 56502.01.02**

Annual number of cases of confirmed shellfish-borne disease due to naturally occurring pathogens in Virginia shellfish.

Measure Type: Outcome **Measure Frequency:** Annually

Measure Baseline: There were 0 cases of confirmed shellfish-borne disease due to naturally occurring pathogens in Virginia in 2005.

Measure Target: Maintain 0 cases during FY07.

Measure Source and Calculation:

Tracked as in Measure 91402.01.01. Sporadic cases of shellfish-borne disease due to naturally occurring pathogens are increasing nationally, but Virginia has had only one confirmed case in recent history. Cases of naturally occurring Vibrio illness are recorded on form "CDC 52.79". VDH will actively strive to achieve zero cases annually, though to always expect zero is unrealistic.

Objective 56502.01 Has the Following Strategies:

- VDH will continue to refine its approach in classifying shellfish growing waters by focusing its classification efforts on the near shore environment, yet maintaining a sufficient effort in the more offshore waters. VDH will evaluate growing waters and shellfish for evidence of animal and human waste, toxic substances, naturally occurring pathogens and biotoxins. Furthermore, VDH will evaluate shoreline properties for potential sources of hazardous waste and substances. VDH will begin dye studies of wastewater treatment facility discharges into shellfish growing areas.
- VDH will assess the need for new near shore seawater sampling stations and reducing offshore stations where possible to minimize sampling yet maximize protection by:
 - Implementing fluorometric surveys of areas suspected of having failing septic tank drain lines that leach into shellfish growing waters.
 - Reducing the inland extent of property-by-property inspections of sanitary waste disposal facilities to free up work force to conduct fluorometric surveys.
 - Collecting and analyzing shellfish by using real time PCR analysis for naturally occurring, pathogenic Vibrio bacteria.
 - Collecting shellfish and seawater for analysis by outside agencies for anthropogenic and naturally occurring toxic substances and toxic algae.
 - Incorporating the use of GIS to help synthesize information and provide the enhanced capability for spatial analysis.
 - Incorporating the use of computer modeling to assess impacts from known sources.
- VDH will provide certification and related training programs and services to ensure shellfish and crab processing facilities are properly maintained and that facility personnel practice good sanitary practices by:
 - Standardizing all VDH inspectors to ensure uniform application of requirements during statewide inspections.
 - Providing technical assistance to processing facility owners to enhance product safety and quality.
 - Collecting processing meat and water samples as a check to ensure the application proper processing techniques and use of sanitary facility water.
 - Working closely with outside agencies to track suspected cases of shellfish-borne disease and to recall suspect product back from markets.

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- VDH will actively suppress the illegal marketing of shellfish and crab meat products by:
 - Initially advising uncertified processors of their requirements under VDH regulations, followed by undercover operations in concert with state and federal law enforcement agencies with the intent to prosecute in court.